

BHUBANANANDA ORISSA SCHOOL OF
ENGINEERING, CUTTACK
ELECTRICAL ENGG. DEPARTMENT

LESSON PLAN

SEMESTER : 6TH (B)

SESSION – SUMMER-(2021-22)

SUBJECT: SwitchGear and Protective Device

NAME OF FACULTY: KUMUDINI BEHERA

Kumudini Behera.

Discipline: Electrical Engg.	Semester:6 th (B)	Name of the teaching faculty: KUMUDINI BEHERA
Subject-SGPD	No. of Days/per week class allotted:05PERIODS /WEEK (MON,TUE,WED,THUR,FRI-1 period each)	Semester: From Date: 10/03/2022 To Date: 10/06/2022 No. of weeks: 14 WEEKS
Week	Class Day	Theory/Practical Topics
1 st (10/03/2021-12/03/2022)	10/03/2022	1. INTRODUCTION TO SWITCHGEAR 1.1 Essential Features of switchgear. 1.2 Switchgear Equipment.
	11/03/2022	1.3 Bus-Bar Arrangement.
2 nd (14/03/2022-19/03/2022)	14/03/2022	1.4 Switchgear Accommodation 1.5 Short Circuit.
	15/03/2022	1.6 Short circuit 1.7 Faults in a power system.
	16/03/2022	2. FAULT CALCULATION 2.1 Symmetrical faults on 3-phase system. 2.2 Limitation of fault current.
	17/03/2022	2.3 Percentage Reactance.

		2.4 Percentage Reactance and Base KVA
	18/03/2022	DOLA PURNAMI
	19/03/2022	HOLI
	21/03/2022	2.5 Short – circuit KVA.
	22/03/2022	2.6 Reactor control of short circuit currents.
	23/03/2022	2.7 Location of reactors. 2.8 Steps for symmetrical Fault calculations
	24/03/2022	2.9 Solve numerical problems on symmetrical fault.
	25/03/2022	2.9 Solve numerical problems on symmetrical fault.
4 th (28/03/2022-02/04/2022)	28/03/2022	3. FUSES 3.1 Desirable characteristics of fuse element.
	29/03/2022	3.2 Fuse Element materials.
	30/03/2022	3.3 Types of fuses and important terms used for fuses.

	31/03/2022	3.4 Low and High voltage fuses.
	01/04/2022	UTKAL DIVAS
5 th (04/04/2022-09/04/2022)	04/04/2022	CLASS TEST- 1
	05/04/2022	3.5 Current carrying capacity of fuse element. 3.6 Difference Between a Fuse and Circuit Breaker.
	06/04/2022	4. CIRCUIT BREAKERS 4.1 Definition and principle of Circuit Breaker.
	07/04/2022	4.2 Arc phenomenon and principle of Arc Extinction. 4.3 Methods of Arc Extinction.
	08/04/2022	4.4 Definitions of Arc voltage, Re-striking voltage and Recovery voltage. 4.5 Classification of circuit Breakers.
6 th (11/04/2021-16/04/2022)	11/04/2022	4.6 Oil circuit Breaker and its classification. 4.7 Plain brake oil circuit breaker. 4.8 Arc control oil circuit breaker
	12/04/2022	4.9 Low oil circuit breaker. 4.10 Maintenance of oil circuit breaker.
	13/04/2022	4.9 Low oil circuit breaker. 4.10 Maintenance of oil circuit breaker.

	14/04/2022	PANA SANKRANTI
	15/04/2022	GOOD FRIDAY
7 th (18/04/2022-23/04/2022)	18/04/2022	4.11 Air-Blast circuit breaker and its classification.
..	19/04/2022	4.12 Sulphur Hexa-fluoride (SF6) circuit breaker. 4.13 Vacuum circuit breaker.
	20/04/2022	4.14 Switchgear component. 4.15 Problems of circuit interruption.
	21/04/2022	4.16 Resistance switching. 4.17 Circuit Breaker Rating.
	22/04/2022	5. PROTECTIVE RELAY 5.1 Definition of Protective Relay. 5.2 Fundamental requirement of protective relay.
8 th (25/04/2022-30/04/2022)	25/04/2022	5.3 Basic Relay operation a) Electromagnetic Attraction type b) Induction type
	26/04/2022	5.4 Definition of following important terms. a) Pick-up current. b) Current setting. c) Play setting Multiplier. d) Time setting Multiplier
	27/04/2022	5.5 Classification of functional relays 5.6 Induction type over current relay (Non-directional)
	28/04/2022	5.7 Induction type directional power relay.
	29/04/2022	5.8 Induction type directional over current relay

9 th (02/05/2022-07/05/2022)	02/05/2022	CLASS TEST-2	
	03/05/2022	EDUL FITAR	
	04/05/2022	5.9 Differential relay a) Current differential relay	
	05/05/2022	b) Voltage balance differential relay.	
	06/05/2022	5.10 Types of protection	
	10 th (09/05/2022-14/05/2022)	09/05/2022	6. PROTECTION OF ELECTRICAL POWER EQUIPMENT AND LINE
		6.1 Protection of alternator.	
10/05/2022		6.2 Differential protection of alternators.	
11/05/2022		INTERNAL	
12/05/2022		6.3 Balanced earth fault protection.	
13/05/2022		6.4 Protection systems for transformer. 6.5 Buchholz relay.	
11 th (16/05/2022-21/05/2022)		16/05/2022	BUDHA JAYANTI
		17/05/2022	6.6 Protection of Bus bar
	18/05/2022	6.7 Protection of Transmission line.	

	19/05/2022	6.8 Different pilot wire protection (Merz-price voltage Balance system)
	20/05/2022	6.9 Explain protection of feeder by over current and earth fault relay.
12 th (23/05/2022-28/05/2022)	23/05/2022	7. PROTECTION OF ELECTRICAL POWER EQUIPMENT AND LINES 7.1 Voltage surge and causes of over voltage
	24/05/2022	7.2 Internal cause of over voltage
	25/05/2022	7.3 External cause of over voltage(lightning)
	26/05/2022	7.4 Mechanism of lightning discharge
	27/05/2022	7.5 Types of lightning strokes. 7.6 Harmful effect of lightning.
13 th (30/05/2022-04/06/2022)	30/05/2022	SABITRI BRATA
	31/05/2022	7.7 Lightning arresters.
	01/06/2022	a) Rod-gap lightning arrester.
	02/06/2022	b) Horn-gap arrester.
	03/06/2022	c) Volve type arrestor.
14 th (06/06/2022-10/06/2022)	06/06/2022	7.9 Surge Absorber
	07/06/2022	CLASS TEST-3

	08/06/2022	8. STATIC RELAY 8.1 Advantage of static relay. 8.2 Instantaneous over current relay.
	09/06/2022	8.3 Principle of IDMT relay.
	10/06/2022	Revision and Discussions